

## Book Reviews

### **ACS conference proceedings series**

**Eighth international congress of pesticide chemistry options 2000**, ed. N. N. Ragsdale, P. C. Kearney & J. R. Plimmer, American Chemical Society, Washington DC, USA, 1995, xiv + 450 pp., price US\$99.95.  
ISBN 0 8412 2995 3

This book incorporates the opening address by Walde-mar Klassen (FAO/IAEA, Vienna), on 'World Food Security up to 2010 and the Global Pesticide Situation', and 38 papers presented in 10 symposia representing the main topics of the 8th IUPAC sponsored Congress of Pesticide Chemistry, held in Washington, DC, 4–9 July, 1995.

The coverage ranges from the generation of new compounds to assessment of pesticide impact on the environment in 10 sections, namely, (1) Chemical synthesis, (2) Delivery of pesticides to their targets, (3) Environmental fate and behaviour, (4) Residues, (5) Biotechnology, (6) Metabolism, (7) Mode of action, (8) Resistance, (9) Regulation, (10) Risk assessment.

In (1), a lead paper on clues to direct synthesis through structure–activity relations and modelling is followed by others, on substituted pyrazole herbicides, chloronicotinyl insecticides (imidacloprid) and the recent fungicidal beta-methoxyacrylates. Formulations, packaging and application, and controlled release, extending to biopesticides, are included in (2); pesticide movement to non-target areas, air, subsurface soils and groundwater in (3), which also refers to lake water contamination by herbicides and organochlorine insecticides. The analytical advances in (4) relate to multi-residue analysis; isomer/enantiomer analysis by chiral resolution gas chromatography and mass spectrometry; aqueous extraction from fruit and vegetables; biotechnology-based methods. The short section (5) includes highlights of the biotechnological production of disease and pest control agents, identification of genes for disease resistance in plants, and regulatory aspects (European Union) relating to foods derived from biotechnology.

Metabolism (6), mode of action (7) and resistance (8) determine the efficiency and selective action of pesticides; the four papers in (6) relate to mammalian pharmacokinetics; plant metabolism and design of selective

herbicides; metabolite identification; and biotransformation in aquatic animals. Advanced knowledge of molecular modes of action (7) increasingly influences the design of herbicides and fungicides, whilst remarkable progress in molecular neurobiology is solving old problems of insecticide mode of action and suggesting new chemicals. Strategies for avoiding or delaying the onset of resistance are critically important. Inheritance of resistance is examined in (8), which considers also the possible use of synergists and the management of resistance to fungicidal sterol demethylation inhibitors.

The relationship between 'hazard' and 'risk' is discussed in section (9), with reports on pesticide risk reduction in North America and on regulatory developments in Europe. A contrasting paper highlights difficulties of pesticide registration in Latin America. The volume concludes (section 10) with two papers on health risk assessment, with emphasis on issues for improved decision making, and two on the ecological risk assessment of pesticides, from theoretical considerations in soils and from field-derived data. There is a subject index.

The book reflects the views of internationally recognised scientists and these papers provide the framework on which was based a Congress involving, additionally, more than 30 workshops and 900 poster presentations, indicating the complexity of the subject as we approach the year 2000. Based on the Congress symposia, the papers inevitably vary in substance and presentation. Nevertheless, the book is recommended as a well presented indication of the intense and continuing effort to refine the essential contribution of chemicals in the safe management of weeds, pests and diseases.

**G. T. Brooks**

**The crop protection directory 1995–96**: UK Edition, ed. Elaine Warrell, London, 1995, 526 pp., price £110.00.  
ISBN 0 9513330 2 X

Anyone who works in any part of the agrochemical industry will have experienced the problem of finding the names of organisations that have the expertise to solve your crop protection problems. If you do find the

appropriate organisation it is nearly as difficult to find their address. It is, therefore, of considerable comfort to find the crop protection directory.

The volume is packed with names, addresses, services offered and contact names together with the telephone and fax numbers. Sixteen chapters provide coverage from registration, through the agrochemical business including research and development groups, distributors, spraying contractors, plant breeders, biotechnologists and biocontrol experts and education. Surprisingly, there are separate sections on stored crops and rodent, small mammal and bird control and the section on the environment does not include small contract companies able to investigate the fate of a chemical after application—this being included under the registration, legislation heading. If it is necessary to separate out animal pest control why not do the same for insects, weeds and crop pathogens? But here I am just being fussy. The headings under which each reader would place the organisations are probably different and a comprehensive index helps you through the book. It is sometimes hard to tell a large company with a broad service base from a one-man consultancy that might make the choice of collaborator difficult. The contact person is also different between operations with some citing their Research and Development Director whilst others give the name of the 'second biologist'. I was also surprised to see so many sections dedicated to PSD, York. The book tells us that UK registration is the costliest in Europe and with all these departments to support it is no wonder!

Overall the book is an excellent addition to the data base for the crop protection industry. It will find a key place on my bookcase and will be used often. I sometimes wonder how I found this information before the book was published. I look forward to the international edition.

**Leonard G. Copping**

**The mammalian metabolism of agrochemicals.** D. H. Hutson & G. D. Paulson, John Wiley & Sons Limited, Chichester, 1995, x + 340 pp., price UK £75.00. ISBN 0 471 951 55 2

This book is Volume 8 of the series *Progress in Pesticide Biochemistry & Toxicology* and consists of eight chapters covering a diverse range of topics associated with mammalian metabolism of agrochemicals.

The first chapter (P. Milburn) addresses the fate of xenobiotics and includes information on the types of biotransformation pathways with reference to specific examples, metabolizing enzyme systems and excretion processes. Some aspects such as novel and reactive intermediates and metabolites receive limited attention but the scope of the chapter is very broad.

Chapter 2 (D. Needham and I. R. Challis) deals with the regulatory requirements and practical aspects of rodent metabolism studies. This is a useful chapter for those not conversant with these aspects since they are seldom covered in other review articles.

Chapter 3 (N. E. Weber and S. K. Collinge) is focused on regulatory requirements for the investigation of metabolite residues in food-producing animals with perspectives from the FDA (veterinary drugs and feed additives) and the EPA (agrochemicals). This is an exceedingly valuable, well constructed concise review.

The next three chapters concern detailed reviews of the mammalian biotransformation of important compounds under the classifications insecticides (J. E. Chambers, T. Ma and H. W. Chambers) herbicides (L. A. P. Hoogenboom) and fungicides (H. Kaneko, N. Isobe and J. Miyamoto). All these chapters are well presented and provide excellent reference sources on the major metabolism pathways for the diverse range of structural types of compound.

Chapter 7 (P. L. Batten and D. H. Hutson) is a perceptive review of the issues associated with species differences in metabolism and the problems associated with extrapolation to man as part of the safety evaluation of agrochemicals. It is apparent that controlled studies in human volunteers using established ethical review procedures can provide data of considerable value for human safety evaluation.

The last chapter (R. C. Beier) addresses the issue of naturally occurring toxins in food, many of which may function as natural pesticides. This is an informative and interesting review which suggests that there may be potentially more serious hazards to human health than synthetic pesticide residues in food.

Overall the volume is a valuable reference source for those involved in agrochemical research and development. It is well-edited with few errors and can be recommended as a worthwhile addition to scientific libraries.

**D. R. Hawkins**